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ABSTRACT

This study used data from a recent telephone survey of Washington, D.C. parents to evaluate the success of the District's large and growing charter school program. Results for 384 parents show that parents with children in charter schools rate their teachers, principals, facilities, and schools overall higher than their traditional public school counterparts in quality of facilities and teachers, and overall. This finding is robust even when controlling for self-selection into charter schools. While the act of choice by itself may contribute to higher parental evaluations of charter schools, the evidence points to a foundation for these higher evaluations in addition to the fact of having chosen the school. (Contains 3 tables and 31 references.) (SLD)

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Making the Grade: Comparing DC Charter Schools to Other DC Public Schools

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Abstract

Across the United States, charter schools have become one of the most frequently used means of increasing choice among educational alternatives. In this paper we use data from a recent telephone survey of Washington D.C. parents to evaluate the success of the District's large and growing charter school program. We find that parents with children in charter schools rate their teachers, principals, facilities and schools overall higher than their traditional public counterparts in quality of facilities, teachers and overall. This finding is robust even when controlling for self-selection into charter schools. While the act of choice alone may contribute to higher parental evaluations of charter schools, our evidence points to a foundation for higher evaluations in addition to choice.

Key words: charter schools, parent evaluation of schools, effective schools, treatment effects, propensity score matching

Making the Grade: Comparing DC

Charter Schools to Other DC Public Schools

In this paper, we study parental evaluation of traditional public schools and charter schools in Washington DC, a city with a large and growing charter school population. Using survey data, we look at how parents in the two different sectors grade their schools and then we look at the durability of differences in attitudes.

Across the United States, charter schools have become one of the most frequently used means of increasing choice among educational alternatives. Appearing first in the early 1990s and gathering momentum throughout the last decade, charter schools play an increasingly large role in the public education system. The number of parents, children and school staff involved with charter schools reached nearly one and a half million at the opening of the 2001 school year. As of that date, a total of close to 2400 charter schools were serving more than 576,000 children, an increase of nearly 12 percent from September of 2000 (Allen 2001).

One apparent reason for the growth in enrollments is that parents and students think charter schools are better than the traditional public schools in which they were previously enrolled. Finn et al. (1997) found that a large majority of parents felt that charter schools in which their children were enrolled were better than the traditional public schools they left, with respect to class size, school size, teacher attentiveness, and the quality of instruction and curriculum. In contrast, less than 5 percent of parents found their new charter schools inferior. Finn et al. also found high levels of student satisfaction, ranging across the whole gamut of school conditions including teachers,

technology, class size and curriculum. Teachers also seem to like charter schools, with high levels of teacher satisfaction found among charter teachers (Koppich 1998).

There are several foundations for this greater satisfaction with charter schools. Perhaps the strongest is that of "allocative efficiency"— education is a complex, multifaceted "good," and choice allows parents to select schools that deliver the kind of education they want for their children (Schneider, Teske, and Marschall 2000). This link between choice and higher parent satisfaction dates at least as far back as Milton Friedman's original argument in favor of vouchers in the 1950s (Friedman 1955).[1]

In his pioneering work, Friedman made a strong appeal for consumer sovereignty, arguing that higher levels of satisfaction with schools will flow from maximizing the freedom of parents to choose schools. Other analysts have also explored this link between sovereignty and satisfaction (see especially Coons and Sugarman [1978] and Raywid [1989]). From this perspective, choice increases parental evaluation of choice schools because it increases the ability of parents to match their preferences for specific values, needs or pedagogical approaches with the school. As Goldring and Shapira put it: "The family sovereignty position suggests choice leads to greater satisfaction in that it accommodates individual family preferences, mainly in the areas of curricula, teaching philosophy, and religion. Parents will be satisfied in exercising their fundamental right of individual choice and freedom of belief about the best education for their children." (1993: 397)

In addition to increasing this match between preferences and schools, choice may change the schools themselves—making better "products" available for parents to choose

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[1] Many of the factors discussed here are associated with choice in general, and have not been developed specifically for charter schools as a form of choice—but clearly apply to the charter school option as well.

among. Indeed, fundamental to the push for choice is the idea that choice unleashes competitive pressure on the schools that makes them improve—and charter schools are often seen as a central tool to leverage such change (see, e.g., Teske at al. 2000). While the debates still rage about the effect of choice on academic outcomes, there are other outcomes from choice that are less contested—and which can increase parental evaluations.

For example, many charter schools are designed to change the relationship between administrators, teachers, parents and students, to create what Coleman (1988) refers to as "functioning communities." In these communities, the tighter links from the school to parents, families, and students is associated with better educational experiences and all parties, including teachers, are more satisfied (Driscoll 1993). This link underlies the basic findings developed in the research on "effective schools," which has shown that good interpersonal relations between members of the school community and shared beliefs and values combine to promote good teaching and a positive learning environment. For example, charter schools usually have a culture (and sometimes even a written contract) that provides parents opportunities to influence school management and to become more involved with the processes of school governance and functioning (see, for example, Peterson and Campbell 2001; Finn et al. 1997). To the extent that this does occur, parental evaluations of their children's' schools may improve (Chubb and Moe 1990; Raywid 1989; Goldring and Shapira 1993).

It is also important to consider that choice seeks not only to empower parents but also to change the role of students, making them more central in the design of education programs and in the functioning of the schools. In short, one goal of choice is to increase

the attention paid by schools to student needs (Hill 1997). Indeed, choice seems to improve student-teacher relations. For example, in her study of the effects of choice, Driscoll (1993) found that choice students were more likely to report "they got along well with teachers, that the quality of teaching was high, and that teachers praised them and listened to them." (1993, 158). Finn et al. (1997) found that large numbers of charter school students liked the "good teachers" in their schools, who, according to these students, teach until they learn the material and who don't let students fall behind. To the extent that this behavioral change strengthens the ties between students and teachers and increases the level of student satisfaction with the schools, parental satisfaction with the schools should in turn increase.

Finally, choice may put pressure on administrators, teachers and staff to be more "consumer friendly." As Hassel writes with regard to charter schools as schools of choice: "charter schools cannot take their 'customers' for granted. Their very survival depends on the degree to which families believe the schools are responding to family preferences and working hard to provide the education they demand." (1999: 6; also see Teske et al. 2000). Thus rather than being isolated from the demands of parents, the competitive pressures on charter schools should increase their responsiveness to parent demands—and responsiveness should lead to higher evaluations.

While these are all strong reasons to believe that choice should lead to actual improvements in schools that will in turn lead to higher evaluation of schools by parents, there are two related possibilities that provide an alternative explanation to the higher evaluations by choice parents.

First, the act of choice alone may increase satisfaction. For example, Erikson argues that parents "who actively choose the schools which their children attend, from among a variety of options, seem far more satisfied with their schools than are parents who simply do the 'normal' thing, with little thought." (Erikson 1986: 105; also see Goldring and Shapira 1993). For Erikson, the causal mechanism underlying this relationship between choice and satisfaction is related to the investment of energy and time that parents put into choice. Given this investment, even if there are no visible reasons for choice to increase satisfaction, many parents may seek to justify their choice and their investment of resources by selectively gathering and interpreting information about performance and by indicating increased satisfaction with their child's school—viewing the school through "rose colored glasses." (Erikson 1982).

Indeed, almost every study of schools of choice, regardless of type of choice and regardless of evidence of improved performance (or lack thereof), has found higher levels of parent satisfaction (see, for example, Bridge and Blackman 1978, Moe 2001, Peterson 1998, Witte, Bailey, and Thorn 1992 on vouchers; Bierlin 1997 on charter schools and Schneider, Teske, and Marschall 2000 on public school choice). Moe also finds that parents who moved to "buy" good schools were more satisfied and argues, "residential choice—the choice of specific neighborhoods or specific schools—promotes greater satisfaction." (2001: 84)

A second explanation is that most choice plans are what Elmore calls "option demand" choice (Elmore 1991). In contrast to a system of "universal choice" where all parents must choose, option demand choice consists of a two-stage process. First, parents must "choose to choose"—that is, they must be dissatisfied enough with their existing

schools or be sufficiently attracted to an alternative to their neighborhood school that they decide to exercise choice. Once they decide to choose, the parent then has to select among the alternatives to find a school in which to enroll her child.

Given this two-stage process, the possibility of endogeneity due to self-selection must be taken into account when studying any outcomes of choice. That is, it is likely that the individuals who choose to choose are not representative of the entire population of parents (see, for example, Schneider, Teske, and Marschall 2000) and the characteristics that are motivating them to choose may affect their subsequent behavior and attitudes toward the schools. To the extent this is true, simple comparisons of choosers and non-choosers are not accurate and the higher evaluations of choice schools found among parents may be a function of the factors that led them to choose in the first place. This endogenity factor can compound the rose-colored glasses effect, since those who choose to choose may be the parents most dissatisfied with their child's schools and may find any alternative school superior.

Are Differences in School Evaluations a Function of Self-Selection?

We asked a sample of parents in Washington DC to assign grades ranging from F to A for three different aspects of their child's school: their child's teacher, principal, and school facilities. We also asked them to assign an overall grade to their child's school.[2]

In this paper, our task is to assess the extent to which the higher evaluations of DC charter schools we report below are robust to the fact that charter schools are option demand systems of choice and therefore parents who choose to choose may be systematically different than parents who have left their children in the traditional public

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[2] See the Appendix for a description of the sample, response rates, and the like.

schools. We test the robustness of differences in evaluations by developing three increasingly complex models.

Model 1: The Naïve Model. In this simple model, we compare the mean grades assigned to each of the four aspects of the schools we measured by charter school parents and parents with children in the traditional public schools. We call this the naïve model since it does not control for any factors that may affect observed differences.

Model 2: A Standard Multivariate Model. In this model, we take into account the fact that parental evaluation of schools may be driven by both a host of individual level factors that have been shown to affect parent attitudes toward schools, such as parent education levels and race, and by school-related factors, such as the size of the school and the child's grade level. In this model, we also account for the fact that letter grades are not a continuous variable but rather an ordered ranking: that is, while we know the A is better than B and B is better than C, we do not know if the "distance" between A and B is the same as the distance between B and C.

Model 3: Controlling for the Effects of Self-Selection. As noted, one of the most important problems plaguing comparison of choosers and non-choosers in an option demand system of choice is the degree to which observed differences in "outcomes" (in this case, school evaluations) are a function of the fact that certain types of parents may be more likely to become choosers. Given this fundamental problem, we are most concerned with the extent to which the patterns we observe are robust to controls for differences between parents who have chosen charter schools versus the rest of the population. This endogeneity problem is increasingly well-known to social scientists, and

a host of models have been developed to control for it. In this paper, we use a *propensity score matching* procedure that we detail below.

A Caveat about Using Grades

Before proceeding with the analysis, we note that there is a well-known pattern when using grades as measures of parent evaluations of schools—parents almost inevitably give high grades to their children's schools. For example, Phi Delta Kappa regularly asks a sample of parents to grade their children's schools. In 2001, 51 percent of parents gave their own children's schools either an A or a B—11 percent gave the grade of A, while 40 percent gave a B. Note that the grades parents give to their own children's school are higher than the grades they assign to the nation's schools as a whole (where only 23 percent gave grades of A or B).[3] And note too that parents are also more likely to give high grades than non-parents—fully 62 percent of parents gave grades of A or B to schools. However, we believe that this bias is not important for our analysis, since we are interested in comparing parents in the charter schools and the traditional public schools in the same city and ultimately we do control for conditions that could affect parents in the two sectors differently.

How do Parents Grade Their Schools?

In Table 1, we report the mean scores[4] for charter school parents and traditional DC public school parents on each of the four aspects of schools (teachers, principals, facilities and overall) with which we are concerned, and we report the significance of any

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[3] For more on these grades, see http://www.pdkintl.org/kappan/k0109gal.htm#1a. This pattern is also evident among our respondents: for example, overall over 40% of the parents in our sample gave their own child's school a grade of A, but only 9% gave the DC schools as a whole an A grade.

[4] The survey data are appropriately weighted for probability of inclusion and post-stratified on charter enrollment due to intentional oversampling of this subpopulation. All the models estimated below use the same weights.

observed differences. Table 1 also displays the results for each of the three models (the naïve model, the multivariate ordered probit model, and the propensity score matching model). We display all these data in one table for ease of comparison across models, although we will discuss the results by model and then compare across models.

[Table 1 About Here]

In the naïve simple comparison of means, our data confirm the pattern documented in other studies: charter school parents in DC, like parents in other choice programs, evaluate their child's schools more highly than do parents in traditional public schools. The differences across all four specific measures uniformly favor charter schools, ranging from one-quarter of a grade for charter school principals to half a grade for facilities. In each of the measures, the differences are significant at the .01 level.

However, we know that parent evaluation of schools is driven by many factors that could be affecting this simple test. For example, parental satisfaction with schools tends to decrease with education, and is also affected by mobility and racial identification (Moe 2001). Schneider, Teske and Marschall (2000) also show that satisfaction is affected by the extent of parental involvement in school activities. In Model 2, we therefore look at the extent to which the difference noted so far hold up to the introduction of such controls. And, as noted earlier, we take into account the nature of dependent variable and use the ordered probit rather than the ordinary least squares estimator.

Specifically, we use the method of maximum likelihood to estimate separate ordered probit models (Zavoina and McElvey 1975) for each of the measure.[5] The covariates for which we estimate coefficients are:

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[5] The ordered probit (or logit) model is a well-known extension of the simple dichotomous logit (probit) econometric model of choice. For all of these models we report not only coefficient values but also the estimated cutpoints (the way in which the data indicate that the logistic function should be partitioned conditional on the data). Note that instead of fixing a cutpoint to identify our models, we instead choose to

- charter school, coded 1 if the respondent's child is in a DC charter school. This is the key variable of interest in our analysis.
- a set of 3 dichotomous variables for self-reported race (Hispanic, white, other, with African-American the excluded—and modal—category),
- residential mobility (measured by two variables: the number of years the respondent has lived in DC and the number of years the person has lived in her current neighborhood),
- respondent's years of schooling,
- whether the respondent thought about moving residence in the past year to get their child into a better school (coded dichotomously 0 or 1),
- whether the respondent applied for a private school for their child in the past year (again coded dichotomously 0 or 1),
- involvement with school activities (1 if respondent reports volunteering for a school event in the past year), and
- school size. There is accumulating evidence that small school size is associated with a range of positive education outcomes (see for example Cotton 1996) and, compared to traditional public school parents, about twice as many charter school respondents have students in small schools. Our measure is simply the number of students in the child's school.

The results of the three ordered probit analyses of school, teacher and facility grades are presented in Table 2, below.

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fix the constant term at zero, thus allowing identification and the estimation of all cutpoints. For details, see (Greene 2000).

[Table 2 About Here]

As Table 2 illustrates, the coefficient of the charter school covariate is significant for all three analyses—parents with children in charter schools rate their schools, their teachers, their principals and their school's facilities higher, even when controlling for a host of other factors. However it is difficult to tell by simple inspection of a table of ordered probit results exactly *how much* a given covariate matters or, in our case, the estimated difference in means of evaluations for charter and non-charter parents (Greene 2000).

To create these estimates, we use stochastic simulation (King, Tomz, and Wittenberg 2000; Tomz, Wittenberg, and King 2000) to estimate predicted probabilities and use these to construct mean scores for charter school parents and traditional DC public school parents that we enter into Table 1. We find that once we introduce controls, the differences between charter school parents and DCPS parents actually become somewhat larger than in the naïve model.

Finally, in Model 3, we test for the degree to which higher evaluations are robust to self-selection effects. As we note above, results from quasi-experimental studies of the effects of public policy (or other "treatments") are potentially biased when the factors predicting self-selection into the program (here, charter schools) are correlated with the outcome measures (Greene 2000; Maddala 1983). One solution to this problem is the estimate of some form of parametric "treatment effects" model, usually by means of a consistent two-step or full-information maximum likelihood model (for a summary see (Greene 2000; Maddala 1983)). Here we instead a semiparametric estimator originally introduced by Rosenbaum and Rubin (1983; 1985) in a biometric context and recently

applied in econometrics (Dehejia and Wahba 1998; Heckman, Ichimura, and Todd 1997; List et al. Forthcoming) known as *propensity score matching*.

The logic underlying this method is to construct, from quasi-experimental data, a matched set of treatment and control observations as if a true random-assignment experiment had been conducted. By computing the propensities of the respondents to choose to undergo the treatment and then matching individuals with identical scores in the treatment and control groups, a new dataset is constructed in which the treatment outcome is exogenous to self-selection. The difference of means for the two groups can then be estimated using several possible techniques. Propensity score matching has several advantages over more familiar treatment effects models, such as relaxation of restrictive parametric assumptions. Moreover, as Dehija and Wahba (1998) conclude, matching provides estimates of the treatment effects more similar to randomized field trials than can be obtained using other corrections for self-selection.[6]

We follow Rosenbaum and Rubin (1983;1985) and first estimate a probit model to calculate predicted probabilities of a respondent having a child in a charter school, and then use these values as the propensity score for matching (note that control observations can be used to match to more than one treatment observation).[7] We then compare the difference of mean evaluations of this matched set of charter and non-charter parents with a *t*-test and report our results in Table 1.

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[6] We should note that we did estimate other methods for controlling self-selection, and the results we present are robust to alternative methods and to alternative selection equations.

[7] We present the results of our probit model in Table 3 of the Appendix. While every variable in the equation is related to the propensity to choose, consistent with the demands of the propensity matching procedure, our concern with this probit model is not testing theory, but rather to obtain as good a fit as possible.

As evident in Table 1, the differences between parents in the two sectors are even larger than in the other models and, again, are statistically significant. In short, the higher evaluations assigned by charter school parents are not simply a function of choice.

The Foundation for Higher Evaluations Is Stronger Than the Act of Choice Alone

In this research we asked parents in Washington DC to evaluate their children's schools using familiar letter grades. We then compared these grades across parents whose children are enrolled in the DC charter schools with those among parents whose children remained in the traditional DC public schools. We found that, across each of the four aspects of schools we measured, parents in the DC charter schools evaluated their child's school more highly than did parents in the traditional DC public schools. We employed three increasingly complex models to assess the extent to which these findings are robust. We find strong evidence that parents in the DC charter schools evaluate their facilities much higher (by between one-half to over three-quarters of a grade on average, depending on the model) than other parents. Charter school parents also give their teachers and their principals higher grades, although not the differences, ranging from one-quarter to one-third of a grade, are not quite as large as those we report for facilities. In terms of their overall evaluation of the child's school, charter school parents are also much more likely to assign higher grades than other DC public school parents. These differences are evident despite increasingly stringent controls for factors that might have driven up scores.

Most importantly, these differences withstand tests for the likelihood that parents who choose charter schools may be systematically different than parents whose children

stay enrolled in traditional public schools—and that those differences might account for the higher evaluation of charter schools. We believe that our data show that the act of choice alone is not behind the higher satisfaction and higher evaluations we found for charter schools: There is a foundation for the higher evaluations parents give to the DC charter schools beyond the act of choosing.

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Table 1: DC Charter School Parents Assign Higher Grades to Their Child's School Than Do Parents Whose Child is in a Traditional DC Public School

Dependent Variable	*Model*	*Charter Mean Grade*	*Non-Charter Mean Grade*	*Difference in Grade*	*p-value of Difference*
School Grade	1. Difference of Means	3.197 (.058)	2.836 (.089)	.361 (.016)	<.01
	2. Ordered Probit	3.35 (.790)	2.914 (.273)	.436 (.188)	<.01
	3. Propensity Score Matching	3.197	2.610	.587 (.242)	<.01
Teacher Grade	1. Difference of Means	3.252 (.060)	3.019 (.084)	.233 (.016)	<.01
	2. Ordered Probit	3.440 (.814)	3.189 (.277)	.251 (.193)	.05
	3. Propensity Score Matching	3.252	2.900	.362 (.234)	<.05
Facilities Grade	1. Difference of Means	3.142 (.070)	2.625 (.099)	.517 (.019)	<.01
	2. Ordered Probit	3.233 (.765)	2.711 (.283)	.522 (.182)	<.01
	3. Propensity Score Matching	3.142	2.330	.812 (.267)	<.01
Principal Grade	1. Difference of Means	3.317 (.065)	3.071 (.090)	.246 (.017)	<.01
	2. Ordered Probit	3.444 (.816)	3.189 (.277)	.255 (.194)	.05
	3. Propensity Score Matching	3.317	2.995	.321 (.231)	<.05

Number of observations = 384
Standard errors in parentheses
p-values are one-tailed tests

Table 2: Charter School Parents Assign Higher Grades Controlling for Other Factors: Results of Ordered Probit Models

Variable	*School Grade*	*Teacher Grade*	*Facilities Grade*	*Principal Grade*
Charter School	.550	.345	.539	.329
	(.127)***	(.130)***	(.134)***	(.132)**
White	.250	-.191	-.160	.214
	(.264)	(.250)	(.288)	(.311)
Hispanic	.639	.066	.358	.512
	(.342)*	(.407)	(.322)	(.264)**
Other Race	-.099	.173	.335	.731
	(.249)	(.297)	(.285)	(.426)*
Years in D.C.	.023	-.009	.023	.013
	(.018)	(.018)	(.019)	(.019)
Years in	.006	-.001	-.011	-.013
Neighborhood	(.012)	(.012)	(.011)	(.012)
Years of	-.025	-.050	.046	.001
Education	(.036)	(.040)	(.036)	(.033)
Volunteer	.026	.221	-.016	.319
	(.182)	(.178)	(.171)	(.178)*
School Size	-.001	-.0004	-.0005	-.0001
	(.0003)**	(.0003)	(.0004)	(.0004)
Grade Level	-.065	-.038	-.088	-.001
	(.025)***	(.024)	(.023)***	(.024)
Thought about	-.185	-.206	-.421	-.166
Moving	(.241)	(.296)	(.219)**	(.240)
Tried to get into	-.665	-.344	.057	-.268
Private School	(.270)***	(.296)	(.258)	(.265)
Cutpoint 1	-2.36	-3.05	-1.51	-1.40
Cutpoint 2	-1.95	-2.75	-.827	-1.16
Cutpoint 3	-1.15	-1.91	-.074	-.569
Cutpoint 4	-.011	-.892	.669	.403
Log-Likelihood	-486.48	-471.86	-537.23	-467.77

$N = 384$

Robust standard errors in parentheses

* $p < .10$ (two-tailed)

** $p < .05$ (two-tailed)

*** $p < .01$ (two-tailed)

Appendix: Sample Design and Response Information and Probit Results

Telephone interviews were conducted among parents with at least one child in a Washington DC charter or public school. Interviews were conducted from September 12 till December 11, 2001. All interviews were conducted by the Center for Survey Research at the State University of New York at Stony Brook. As a quality control measure, up to 15 callbacks were made per number and an attempt was made to convert all initial refusals. Almost 52 percent of all interviews were validated on a subsequent call after the interview had been completed.

Sample Design

Parents were drawn from two distinct samples – an RDD sample of parents with children in charter and public schools and a sample of parents from a list of charter school parents provided by DC charter schools.

RDD Sample. A list-assisted method of random-digit-dialing (RDD) was used to obtain phone numbers in the main state sample. Numbers were purchased from Genesys. Under the list-assisted sampling method, random samples of telephone numbers are selected from blocks of 100 telephone numbers that are known to contain at least one *listed* residential telephone number. These blocks with at least one residential telephone number are referred to as "1-plus" working blocks. According to Survey Sampling Inc. roughly 40 percent of telephone numbers in 1-plus working blocks are residences, although percentages are as high as 54 percent when the blocks are screened for non-working and business numbers.

Charter School. A sample of charter school parents was drawn from a list of parents in 30 DC charter schools. Not all numbers provided by the schools were valid and numbers that lacked the appropriate number of digits were eliminated prior to sampling. This left a total of 7,389 valid phone numbers for charter school parents.

Response Rates

RDD Sample. A total of 24,000 numbers were drawn from 1-plus blocks for the main state sample. Of those, Genesys screened out 5,214 or 21.73 percent as numbers that it detected as non-working or listed in directories of known business numbers. This left 18,786 numbers that were actually dialed by the Center for Survey Research. Just over 46 percent of all these numbers (N=8,734) were coded as non-households. This includes all numbers coded as disconnected, a business, government office, fax, changed number or cell phone. It also includes 1,550 numbers estimated as non-households. These 1,550 numbers are drawn from all numbers that were called 15 times and at which there was ever only a busy signal or no answer (but no answering machine). Based on research by Westat, we estimate that 75 percent of these numbers are non-households. This number is based on national estimates. There were 2,067 numbers in this category and 1,550 were estimated to be non-working numbers.

This left 9,956 possible households in the sample of phone numbers. Of the remaining households, 6,523 (a total of 941 parents plus 5,582 non-parents or non-DC parents) were successfully screened for the presence or absence of children in DC public or charter schools. This resulted in a screening rate of 62.81 percent for parenting status

obtained by dividing the number of DC parent plus non-parent households by the total number of households in the sample. The total number of parenting households in DC is estimated at 922 or 14.13 percent of all screened households. This number omits 264 (245 non-parents and 19 not in DC) households that were coded in at least one contact attempt as parents in DC but were later recoded as non-parents. The status of these numbers is ambiguous and could reflect the actions of respondents to avoid an interview. If all of these numbers are included (probably an overestimate) the incidence of parents in the sample increases to 18.18 percent.

Of those households identified as obtaining a parent of a child in a DC school (N=922), interviews were completed in 504 resulting in a cooperation rate of 54.66 percent. This results in an overall response rate in the sample of 34.33 percent. This response rate is calculated by combining the screening rate for parenting households (62.81 percent) with the cooperation rate among households identified as parents of children in DC schools (54.66 percent).

Charter School Sample. Charter school parents were drawn from a list of names provided by 30 charter schools in the DC areas. The sample was self-weighting which means that unequal numbers of parents were drawn from each school. The number of parents selected form a school was directly proportional to the size of the school in relation to all charter school parents in DC. Thus more parents were chosen from large school and fewer from small schools. This ensures that the final sample represents parents in charter schools across the DC area. The sampling fraction was 29.63 percent or just under a third; parents were drawn in successive random waves from the lists. There were 7,389

parents listed (after bad numbers were culled from the lists) and 2,189 numbers were included in the sample.

Of the total 2,189 numbers, just over 23 percent of all numbers (N=522) were coded as non-households. This includes all numbers coded as disconnected, a business, government office, fax, changed number or cell phone. It also includes 6 numbers estimated as non-households. These 6 numbers are drawn from all numbers that were called 15 times and at which there was ever only a busy signal or no answer (but no answering machine). There were 24 numbers in this category and 18 (75 percent) were estimated to be non-working numbers.

This leaves 1,667 possible households in the sample of phone numbers. Of the remaining households, 1,321 (a total of 811 parents plus 441 non-parents and 69 non-DC parents) were successfully screened for the presence or absence of children in DC public or charter schools. Given the messy status of the sample, we assumed that numbers were not associated with parents of students in charter schools until this had been verified by an interviewer. This resulted in a screening rate of 79.24 percent for parenting status, obtained by dividing the number of DC parent plus non-parent households by the total number of households in the sample.

Of those households identified as obtaining a parent of a child in a DC school (N=811), interviews were completed in 510 resulting in a cooperation rate of 62.89 percent. This results in an overall response rate in the main sample of 49.83 percent. This response rate is calculated by combining the screening rate for parenting households (79.24 percent) with the cooperation rate among households identified as parents of children in DC schools (49.83 percent).

Table 3: Results of Probit Model Used for Propensity Score Matching

Variable	*Coefficient (s.e.)*
White	-18.68 (14.19)
Hispanic	-.131 (1.97)
Other Race	.588 (.401)
Age	.007 (.008)
Gender of Respondent	.480 (.218)
Years Lived in D.C.	-.015 (.018)
Years Lived in Neighborhood	-.003 (.012)
Number of Children	.061 (.059)
Employed	.200 (.203)
Married	-1.20 (1.02)
Years of Education	.348 (.388)
Years of Education Squared	-.017 (.013)
Information from School Newsletter	-.080 (.191)
Information from Mass Media	.091 (.161)
Information from Teachers	.169 (.186)
Information from Staff	.131 (.165)
Information from Colleagues	.056 (.182)
Information from Other Parents	.080 (.175)
Information from Friends	-.063 (.174)
PTA Member	-.357 (.161)
Volunteer at School Events	-2.41 (1.04)
Number of Organizations a Member of	-.112 (.055)
Number of People Discuss Schools with	-.007 (.017)
Generally Trust Government	.105 (.116)
Child's Grade Level	.081 (.024)
"Values" Are Important	-9.22 (3.26)
Discipline Is Important	.636 (1.22)
Thought about Moving for Better School	.036 (1.30)
Tried to Get Into Private School	.844 (1.53)
Charter Attitude 1—More Affluent Choose	-.428 (.180)
Charter Attitude 2—Charters Pressure	-1.43 (1.11)
Charter Attitude 3—Charters Too Risky	.417 (1.25)
Frequency of Computer Use	-.007 (.026)
Frequently Attend School Events	-.059 (.067)
Frequency of Church Attendance	.086 (.269)
Education X Values	.779 (.246)
Education X White	.934 (.809)
Education X Hispanic	.022 (.138)
Education X Volunteer	.176 (.077)
Education X Discipline	-.049 (.089)
Education X Thought About Moving	-.043 (.099)
Education X Applied for Private School	.023 (.107)
Education X Church	-.003 (.019)
Education X Charter Attitude 1	.169 (.081)
Education X Charter Attitude 2	-.062 (.087)
Education X Married	.085 (.074)
Thought about Moving X Private School Applied	-.621 (.431)
Constant	-4.67 (3.03)
Pseudo R^2	.2433
Log-Likelihood	-105.42
Percent Correctly Predicted (Weighted)	90%

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